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RESPONSE OF THE ENVIRONMENT TO THE PHENOMENON OF GLOBALIZATION

Globalization, agriculture and the environment

Report of the Executive Director

Summary

1. The present report summarizes the interlinkages between globalization, agriculture and the environment and addresses the environmental impacts of globalized agriculture, the social impacts of globalized agriculture, the impact of current policies on the agricultural sector and the environment. In addition, it poses questions on future action to stimulate the discussion under this item, on the response of the environment to the phenomenon of globalization.

2. The outcome of the discussion in the High-level Committee of Minister and Officials on this item will set the stage for the contribution of the United Nations Environment Programme (UNEP) to the eighth session of the Commission on Sustainable Development.

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INTRODUCTION

3. Globalization is usually defined as the process of integration of the world's economies in a single market, both for goods and services and also for capital and investment flows. By and large, globalization has emerged as economic liberalization has become prominent in national economies throughout the world. Through a greater reliance on outward-oriented development strategies, trade and investment liberalization policies over recent years have substantially removed national market boundaries and have increasingly linked countries into a single world economy.

4. Within today's global economy, countries now trade more intensively and frequently than in the past. Governed by rules established under the World Trade Organization (WTO) agreements, trade has become an increasingly important global economic activity, with annual trade volumes increasing sixteen-fold over the last fifty years and the ratio of world trade volume to gross domestic product (GDP) now approaching 50 per cent. Trade in goods and services has grown twice as fast as global GDP in the 1990s, and the share attributable to developing countries has climbed from 23 to 29 per cent, now accounting for almost 50 per cent of aggregate GDP in developing countries.

5. Recognizing that the benefits of trade can strongly contribute to the improvement of basic living standards, many of the world's developing countries have sought active participation in the global trading regime. Over the past two decades, many developing countries have been implementing structural adjustment programmes to open their economies and take full advantage of trade prospects offered by the WTO agreements. Growing membership in WTO (110 of the 152 developing countries were members in 1999) and in a burgeoning array of regional trade agreements has opened developing economies to both the opportunities and the challenges of multilateral trading regimes.

6. Agriculture is a critical sector for world trade. In 1997, agricultural products represented 11 per cent of the global trade in goods. The sector grew at an annual average rate of 5.0 per cent between 1990 and 1997.

7. With the growing integration of the world's economies, trade in agricultural commodities between countries has increased. With greater access to world markets, and heightened exposure to market distortions, farm production levels have grown and management practices have shifted worldwide. At the same time, the increasing use of new biotechnologies, growing populations and shifting consumer preferences to organic and processed foods are other factors shaping choices in agricultural production and distribution.

8. Market distortions strongly influence trade patterns. The continued presence of trade barriers in world markets limits market access, affecting farm incomes and resource management decisions. Additional market distortions arise since agriculture is an economic activity that makes significant use of supposedly "free" environmental resources. Taken

together, these distortions can lead to unsustainable agricultural practices that, over time, threaten to degrade and deplete natural and environmental resources both in developed and developing countries. That said, restrictive trade measures may sometimes be necessary to avoid the over-exploitation of natural resources.

9. There are many opportunities for policy intervention to promote sustainable agriculture, so that environmental and associated economic and social problems can be avoided. The present background paper focuses on examining how agriculture has been affected by globalization of the world economy.

I. ENVIRONMENTAL IMPACTS OF GLOBALIZED AGRICULTURE

10. Agriculture is a critical sector for the global environment. By virtue of its large land and water requirements, agriculture uses and affects a greater share of most nations' natural resources than any other industry. Agricultural activities have a direct impact on the full range of environmental media, including water, land, biodiversity, and air. These impacts are affected by access to inputs, infrastructure, technology and production techniques. In addition, through environmental media, as well as through food quality and safety, agriculture can have important impacts on human health.

11. Agriculture has significant impacts on water quantity and quality. Irrigation practices in the agricultural sector, in particular, have an impact on water quantity, as a number of countries rely heavily on irrigated crops for domestic consumption and export.

12. Water quality can also be affected by agricultural practices. Runoff and seepage of fertilizers and pesticides are major sources of groundwater pollution in many countries. Groundwater is especially susceptible to nitrate contamination originating in inorganic fertilizer and manure. The risk of nitrate groundwater rises in direct proportion to agricultural activity.

13. Agricultural production also affects land. Tillage and other cultivation practices, farming on marginal lands and the increased use of row crops all lead to the increasing erosion of soil and loss of topsoil. In addition, soil quality is affected by the use of chemical fertilizers and pesticides. The results of these processes include salinization, acidification and low soil fertility. Technology and infrastructure can mitigate these impacts, but high cost hampers the development and use of appropriate technologies, particularly in developing countries.

14. Land use is closely associated with biodiversity. The need for increased feed grains leads to the conversion of grasslands and wetlands to farmland; field sizes tend to increase, crop diversity tends to diminish, crop rotations decline and fertilizers and pesticides are used at an increased pace.

15. The conversion of land to farmland and pasture can lead to deforestation, which also adversely affects biodiversity and habitats for a range of biota. Tropical rainforests, which contain approximately 50 per cent of the world's biodiversity, have, since 1950, declined by more that 200 million hectares as a result of contributing factors such as ranching and crop cultivation. Agriculture (including crop and livestock production) has contributed to deforestation more than any other economic activity.

16. Plant diversity can be affected by agricultural practices resulting from selective cultivation and plant breeding, which narrow the genetic base of agricultural production. In developing countries and in economies where subsistence farming is important, the selection of seeds is often an essential part of producers' strategies to cope with difficult environmental and climactic conditions, such as drought or irregular rainfall, frost, winds, pests and poor soil. Traditional producers operating under these conditions will often rely on various combinations of seed varieties and dates of sowing to ensure a viable crop. Indeed, this use of genetic diversity in production is one of the most powerful technological resources available to traditional producers.

17. Globalization pressures to augment production increasingly lead to the use of new high-yield technologies. These include high-yield genetically modified organisms (GMOs) and more effective, less polluting fertilizers and pesticides. Protected by intellectual property rights, these technologies are costly and largely unavailable to farmers in developing countries. In addition, as new technologies, their environmental and health impacts are not well understood. There are indications, however, that undesirable genetic erosion progresses with the introduction and increased use of improved high-yield seed varieties and hybrids.

18. The use of chemical inputs such as fertilizers and pesticides has a direct impact on the environment. Residues from pesticides and fertilizers can lead to high nitrate levels in drinking water as well as soil contamination. This can affect human health and both animal and plant habitat. Furthermore, the impacts of pesticides may not be confined to their area of application, as their residues can be transmitted in the atmosphere and in waterways.

19. In many countries no account is taken of the external costs of farming. In some developing countries, farmland remains governed by common access property regimes, and farmers have little incentive to internalize land degradation costs by investing in sustainable agriculture techniques. Furthermore, when property rights are not uniquely defined, farmers are only loosely accountable for environmental damage that excessive use of fertilizers and pesticides have on the nearby vicinity or the farmland itself. In developed countries, fertilizer and pesticide-laden water runoff from farms is a form of non-point source pollution that is neither monitored nor taxed. Resulting ground water pollution is a growing problem.

II. SOCIAL IMPACTS OF GLOBALIZED AGRICULTURE

20. Urban migration and rural disintegration are problems for all countries. If their livelihoods become unprofitable because of globalization, many rural farmers will migrate to large and overcrowded urban areas, where, untrained to enter the skilled work-force, they aggravate problems of urban poverty, unemployment and social strife. Rural disintegration is also a matter of serious concern since agriculture provides countries with a wide range of non-economic benefits, including social community life and cultural heritage.

21. Government subsidies for agriculture in developed countries results in substantial social welfare loss. Developed country consumers continue to pay for agricultural commodities at prices substantially above world prices. These price distortions represent a considerable welfare loss to society, when stock is taken of the tens of billions of dollars that Governments spend annually to support agriculture in developed countries. In fact, the over $160 billion spent each year on agricultural support is about four times that spent on official development assistance (ODA) worldwide.

III. IMPACT OF CURRENT POLICIES ON THE AGRICULTURE SECTOR AND THE ENVIRONMENT

22. The impacts of agriculture on the environment are closely related to trade policy. The agriculture sector is the target of government policies that translate, inter alia, into various forms of subsidies, supply management and taxation schemes. Since the 1950s, industrialized countries have tended to develop increasingly protectionist policies. These policies have environmental implications and distort trade.

23. As in other sectors, in the agricultural sector the prices of inputs and outputs do not fully reflect the social costs of soil and water depletion, non-point source pollution, deforestation and other adverse impacts of agricultural production. Because the agricultural sector relies directly on environmental resources, its externalities tend to have a relatively greater impact on ecosystems than other economic activities.

24. Government policies which distort the prices of agricultural production and inputs (water, fertilizers, and pesticides) can result in increased externalities. High output prices and low input prices tend to exacerbate environmental impacts, such as excessive soil and water degradation, excessive fertilizer and pesticide use and increased production on marginal lands.

A. Tariffs and import barriers

25. With the Agreement on Agriculture, the WTO Uruguay Round marked a significant turning point in world agriculture trade. The Agreement calls on developed and developing countries to reduce barriers to trade in agricultural products. The commitments under the Agreement comprise three elements: increasing market access; reducing tariffs and subsidies; and

eliminating non-tariff barriers. Implementation of the Agreement began in 1995, with the reduction commitments of developed countries to be completed by 2000, and those of developing countries by 2004.

26. The WTO Agreement on Agriculture represents only a partial liberalization agreement: quantitative reductions in support to agriculture are relatively small and spread over several years. For that reason, a large degree of distortion in the world agricultural commodities market will remain, even after the complete implementation of reduction commitments. Through the built-in agenda of the Agreement on Agriculture, however, future discussions are poised to reduce the remaining barriers still further.

B. Domestic support

27. Growing agricultural trade in the post-war era has in part resulted from agricultural and related trade policies which have artificially supported the prices of some crops relative to others and subsidized the prices of many inputs such as water, fertilizers and pesticides.

28. In many industrialized countries and emerging economies, production subsidies have encouraged environmentally destructive farming, including the excessive use of chemical fertilizers and pesticides and the abandonment of traditional practices such as rotating crops and fallowing fields. These shifts can accelerate soil erosion and the accumulation of chemicals in lands, water, threatening the long-term stability of global agriculture.

29. Input subsidies are a second form of domestic support. These can include providing the use of natural resources at costs substantially lower than market values. Such is the case in a number of countries where irrigation projects are managed by national Governments. In developing countries, one estimate suggests that $13 billion is lost per year on public irrigation projects. Agricultural subsidies have been found to correlate with higher rates of pesticide and fertilizer use, thus increasing water pollution and soil degradation.

30. Export subsidies have traditionally been used to remove surpluses and their price-depressing effect from domestic markets. The subsidized exports of surpluses from developed countries depress international market prices, thereby affecting farmers in developing countries. The Agreement on Agriculture aims to stop the escalation of farm export subsidies and to reduce domestic farm programmes by 20 per cent in developed countries over six years and 13 per cent in developing countries over ten years.

31. In developing countries, farmers are typically taxed rather than subsidized. While these policies can depress production, they do not necessarily conserve natural resources and do not necessarily result in reduced output. In order to maintain household incomes, these farmers are often forced to use their resources at levels that are ultimately unsustainable. Poor farmers are often compelled to farm marginal lands subject to erosion and runoff, or to clear forests, in order to earn a subsistence level of income. In some cases subsidies are paid to reduce the costs of inputs and increase yields, leading to their over-application and consequent rises in soil and water contamination.

32. The greatest difference in positions of developing countries on agricultural trade reform is to be found between those which are net food importers and those which are net food exporters. Net food importing countries have an interest in maintaining export subsidies. Likewise, there is a strong interest on the part of net food exporting countries to devise rules prohibiting export taxes and quotas. Import access rights are also important for developing countries.

33. At present, the Uruguay Round reform offers only modest benefits to developing countries although it is useful to bring agriculture into the mainstream of multilateral trade policy.

IV. QUESTIONS FOR DISCUSSION

A. Environment and sustainable development

34. Globalized agriculture has positive and negative effects on the environment:

(a) Are the environmental impacts of globalized agriculture well understood?

(b) Are the interlinkages between globalized agriculture, biodiversity, desertification, deforestation, freshwater resource management and climate change well understood?

(c) Has globalized agriculture resulted in sustainable development?

(d) Are the impacts of trade liberalization on biodiversity well understood?

(e) Is there a need for an assessment of the impacts of globalized agriculture on the environment (land, soil, water, forests, biodiversity)?

(f) Do sufficient programmes for sustainable agriculture currently exist?

35. In view of advancements that have been made in biotechnology in recent years:

(a) Should research programmes be launched to assess the environmental impacts of GMOs?

(b) Should greater efforts be made to raise awareness of the environmental impacts of GMOs?

(c) Should farmers and consumers be informed of products which have been genetically modified?

(d) Should access to environmentally sound technology be improved?

(e) Should the economic consequences of increased farmer dependence on GMO crops be assessed?

(f) Should special arrangements be made to subsidize the purchase of GMO seeds by low-income farmers?

36. Environmentally sound technology is essential for sustainable agriculture:

(a) Are existing technologies promoting sustainable agriculture practices?

(b) Are existing technology transfer mechanisms sufficient?

(c) Are indigenous technologies being adequately utilized and are capabilities being enhanced to develop these technologies and to absorb advanced ones?

B. Social issues

37. Globalized agriculture has social impacts:

(a) Do Governments need to undertake an assessment of the social implications of globalized agriculture?

(b) Has globalized agriculture resulted in poverty alleviation and food security in developing countries?

(c) Has globalized agriculture resulted in increased employment, income and rural community development and social cohesion and welfare?

(d) Are social and community development programmes needed to support the social fabric of rural areas?

(e) Are the ethical, social and economic implications of biotechnology and intellectual property rights well understood?

C. Economic and trade issues

38. Globalization has resulted in an increase in the volume of trade during the last two decades worldwide:

(a) Have the full economic impacts of trade liberalization been assessed?

(b) Has globalized agriculture resulted in increased market access and exports, and high GDP rate of growth, particularly for developing countries?

(c) Should countries ensure that an environmental assessment of trade liberalization on the agriculture sector be undertaken?

(d) What policies are needed to ensure that environmental considerations are integrated into agriculture policies?

(e) Should emphasis be placed on the WTO Agreement on Agriculture to address subsidies, tariffs, non-tariff import barriers, commodity prices, market access, technology transfer and capacity-building?

(f) Do the current provisions in the WTO agreements with respect to trade-related aspects of intellectual property rights (TRIPs), sanitary and phytosanitary measures and technical barriers to trade permit an enabling environment for sustainable agriculture?

39. Subsidies and tariffs distort the market mechanism:

(a) How can Governments be induced to reduce tariffs more substantially?

(b) Will the removal of agricultural subsidies lead to greater sustainability?

(c) What are the barriers to the removal of perverse subsidies in both developed and developing countries?

(d) Which stakeholders are most opposed to subsidy removal and why?

(e) To what extent can these barriers be removed by appropriate awareness-raising, capacity-building, and the provision of alternative employment opportunities for affected farmers?

(f) How can funds generated from subsidy removals, particularly in developed countries, be channelled to finance environmentally sustainable programmes in developing countries?

D. Capacity-building and institutional development

40. Capacity-building for developing countries is essential to promote sustainable development:

(a) How can the effective participation of developing countries be effectively enhanced in the negotiations of the Agreement on Agriculture?

(b) Is there a need to undertake a needs assessment for capacity-building in developing countries?

(c) How can existing programmes for capacity-building be enhanced?

(d) Is there a need to strengthen governance systems that enable developing countries to benefit from financial flows associated with globalization?

(e) Should the capacity of Governments to supervise and monitor the influx of capital, particularly by transnational corporations, be enhanced to ensure sustainability?

(f) What role should international organizations play in responding to capacity-building needs?

E. National policy

41. Efforts have been undertaken in a number of countries to integrate environmental considerations into sectoral policies:

(a) What government policies need to be developed and adopted to integrate social, environmental, economic and trade polices?

(b) What policies are required to ensure food security and the sustainable use of environmental and natural resource bases and designed to meet social, cultural, and economic circumstances and national development priorities?

(c) Should the system of national accounting be revised by Governments in order to reflect the depletion and degradation of environmental and natural resources, resulting from development activities?

(d) Is there a need for Governments to strengthen the monitoring and enforcement of environmental policies relating to agriculture?

(e) How can national Governments adopt a multi-stakeholder approach to policy-making, including the involvement of grassroots organizations, non-governmental organizations, the private sector, the industry sector and the academic community?

(f) What policies are required by Governments to eliminate perverse subsidies and policies that tax agricultural production?

(g) Are private property rights needed where farmland under common access regimes is deteriorating?

(h) How can bilateral development assistance be redesigned to ensure that supported programmes do not result in undue pressures on the environment?

(i) What kind of technological innovation programmes are required to enhance the development of indigenous technologies and absorb and adapt exogenous technologies to country requirements and needs?

(j) How can private and public sector partnership be promoted so that it effectively contributes to and encourages financial capital investment in sustainable agriculture?

(k) How can Governments enhance coordination at the national level between relevant government departments dealing with agriculture, trade and the environment?

(l) How can Governments improve social services and enhance the community development of rural areas, in order to ensure the provision of adequate educational and health services and basic amenities, as well as physical infrastructure, as a necessary requirement and incentive to promote rural development?

(m) How can Governments, together with nongovernmental organizations, undertake effective public-awareness campaigns to promote sustainable agriculture policies?

F. International cooperation

42. Several organizations, such as the Food and Agriculture Organization of the United Nations (FAO), WTO, the United Nations Conference on Trade and Development (UNCTAD), UNEP, the World Bank, the International Monetary Fund (IMF), the United Nations Development Programme (UNDP) and non-United Nations organizations such as the Organisation for Economic Cooperation and Development (OECD) and the Consultative Group on International Agricultural Research (CGIAR) have activities directly or indirectly related to environment, agriculture and trade. Are current programmes provided by these organizations:

(a) Sufficiently and adequately coordinated?

(b) Promoting the development and implementation of sustainable agricultural programmes that encourage the internalization of environmental and social costs?

(c) Taking account of provisions in the Agreement on Agriculture, including economic, social and environmental implications at the international and national levels?

(e) Facilitating the development and use of economic instruments which can realize the integration of environmental considerations into agricultural practices?

(f) Effectively enhancing the capacities of countries in implementing integrated crop and pest management programmes?

(g) Assisting countries to develop approaches and criteria for the integration of social and economic considerations into agricultural policies?

(h) Providing technical assistance to developing countries on the impacts of the Agreement on Agriculture?

(i) Developing tools to evaluate the economic and social trade-offs of agricultural policies?

(j) Effectively coordinated, so as to enhance synergies and complementarities between their programmes, including by coordinating the timing and venue of events to facilitate maximum participation and reduce costs?

G. Financial mechanisms

43. Financial resources are essential to promote sustainable agriculture:

(a) Are current financial resources and mechanisms sufficient?

(b) Is there a need for additional financial mechanisms (ODA, debt conversions, GEF, clean development mechanism, sustainable development funds and other new schemes) to support developing countries' efforts in implementing national, regional and global sustainable development?

(c) Could the use of market-based incentives assist in generating additional funding to support sustainable agriculture?